AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Previously presented) A recombination system for repeated, successive application within the same organism comprising:

a transgenic recombination construct capable of being inserted into the chromosomal DNA of a eukaryotic organism said construct comprising in a 5'- to 3'-orientation;

a first homology sequence A;

at least one recognition sequence for site-directed induction of DNA double-strand breaks where all recognition sequences for site-directed induction of DNA double-strand breaks are located between homology sequences A and B; and

a second homology sequence B,

wherein the homology sequences A and B have at least 20 base pairs and at least 70% homology that allows for homologous recombination; and

an enzyme suitable for inducing DNA double-strand breaks at a recognition sequence for the site-directed induction of DNA double-strand breaks or a nucleic acid sequence encoding said enzyme;

wherein after homologous recombination of homology sequences A and B the resulting transgenic sequence derived from said transgenic recombination construct does not comprise any recognition site for said enzyme suitable for inducing DNA double-strand breaks.

2. (Previously presented) The system of claim 1, wherein the construct, after said first homology sequence, contains a further nucleic acid sequence.

3. (Previously presented) The system of claim 2, wherein the construct further contains a second recognition sequence for the site-directed induction of DNA double-strand breaks.

4. (Previously presented) The system of claim 2, wherein the further nucleic acid sequence contains at least one selection marker.

5. (Withdrawn) The system of claim 1, wherein the construct further contains at least one of the elements selected from the group consisting of selection markers, reporter genes,

replication origins, multiple cloning regions, border sequences for Agrobacterium transfection, sequences which enable homologous recombination or insertion into a genome of a host organism, expression cassette for an enzyme suitable for inducing DNA double-strand breaks at the recognition sequence for the site-directed induction of DNA double-strand breaks and combinations thereof.

6. (Withdrawn) The system of claim 1, wherein the enzyme is selected from the group consisting of restriction endonucleases, homing endonucleases, group II intron endonucleases, recombinases, transposases, chimeric nucleases and combinations thereof.

7. (Withdrawn) The system of claim 1, wherein the enzyme is selected from the group consisting of F-SceI, F-SceII, F-SuvI, F-TevI, F-TevII, I-AmaI, I-AniI, I-CeuI, I-CeuAIIP, I-ChuI, I-CmoeI, I-CpaI, I-CpaII, I-CreI, I-CrepsbIP, I-CrepsbIIP, I-CrepsbIIIP, I-CrepsbIVP, I-CsmI, I-CvuI, I-CvuAIP, I-DdiI, I-DdiII, I-DirI, I-DmoI, I-HmuI, I-HmuII, I-HspNIP, I-LlaI, I-MsoI, I-NaaI, I-NanI, I-Nc1IP, I-NgrIP, I-NitI, I-NjaI, I-Nsp236IP, I-PakI, I-PboIP, I-PcuIP, I-PcuAI, I-PcuVI, I-PgrIP, I-PobIP, I-PorI, I-PorIIP, I-PpbIP, I-PpoI, I-SPBetaIP, I-ScaI, I-SceI, I-SceII, I-SceIII, I-SceIV, I-SceV, I-SceVI, I-SceVII, I-SexIP, I-SneIP, I-SpomCP, I-SpomIP, I-SpomIIP, I-SquIP, I-Ssp6803I, I-SthPhiJP, I-SthPhiST3P, I-SthPhiS3bP, I-TdeIP, I-TevI, I-TevII, I-TevIII, I-UarAP, I-UarHGPA1P, I-UarHGPA13P, I-VinIP, I-ZbiIP, PI-MtuI, PI-MtuHIP, PI-MtuHIIP, PI-PfuI, PI-PfuII, PI-PkoI, PI-PkoII, PI-PspI, PI-Rma43812IP, PI-SPBetaIP, PI-SceI, PI-TfuI, PI-TfuII, PI-ThyI, PI-TliI, PI-TliII and combinations thereof.

8. (Withdrawn) The system of claim 1, wherein the enzyme is selected from the group consisting of enzymes encoded by the sequence as shown in SEQ ID NO: 2, 4, 6, 8 or 10, and combinations thereof.

9. (Withdrawn) The system of claim 1, wherein the enzyme is expressed from an expression cassette that contains a nucleic acid sequence encoding said enzyme.

10. (Withdrawn) The system of claim 9, wherein the nucleic acid sequence encoding said enzyme comprises the sequence as shown in SEQ ID NO: 1, 3, 5, 7 or 9.

11. (Withdrawn) A method for removing a DNA sequence from chromosomal DNA of a eukaryotic cell or organism comprising:

introducing the recombination system of claim 1 into the chromosomal DNA of a eukaryotic cell or organism;

inducing DNA double-strand breaks at the recognition sequence; and

conducting homologous recombination between the homology sequences A and B.

12. (Withdrawn) The method of claim 11, wherein the construct contains a further nucleic acid sequence.

13. (Withdrawn) The method of claim 12, wherein the further nucleic acid sequence contains at least one of the elements selected from the group consisting of selection markers, reporter genes, replication origins, multiple cloning regions, border sequences for Agrobacterium transfection, sequences which enable homologous recombination or insertion into a genome of a host organism, expression cassette for an enzyme suitable for inducing DNA double-strand breaks at the recognition sequence for the site-directed induction of DNA double-strand breaks and combinations thereof.

14. (Withdrawn) The method of claim 11, wherein the construct, after said first homology sequence A contains a second recognition sequence for the site-directed induction of DNA double-strand breaks.

15. (Withdrawn) The method of claim 11, wherein the construct contains at least one of the elements selected from the group consisting of selection markers, reporter genes, replication origins, multiple cloning regions, border sequences for Agrobacterium transfection, sequences which enable homologous recombination or insertion into a genome of a host organism, expression cassette for an enzyme suitable for inducing DNA double-strand breaks at the recognition sequence for the site-directed induction of DNA double-strand breaks and combinations thereof.

16. (Withdrawn) The method of claim 11, wherein the enzyme is selected from the group consisting of restriction endonucleases, homing endonucleases, recombinases, transposases, chimeric nucleases and combinations thereof.

17. (Withdrawn) The method of claim 11, wherein the enzyme is selected from the group consisting of F-SceI, F-SCeII, F-SuvI, F-TevI, F-TevII, I-AmaI, I-AniI, I-CeuI, I-CeuAIIP, I-

ChuI, I-CmoeI, I-CpaI, I-CpaII, I-CreI, I-CrepsbIP, I-CrepsbIIP, I-CrepsbIIIP, I-CrepsbIVP, I-CsmI, I-CvuI, I-CvuAIP, I-DdiI, I-DdiII, I-DirI, I-DmoI, I-HmuI, I-HmuII, I-HspNIP, I-LlaI, I-MsoI, I-NaaI, I-NanI, I-Nc1IP, I-NgrIP, I-NitI, I-NjaI, I-Nsp236IP, I-PakI, I-PboIP, I-PcuIP, I-PcuAI, I-PcuVI, I-PgrIP, I-PobIP, I-PorI, I-PorIIP, I-PpbIP, I-PpoI, I-SPBetaIP, I-ScaI, I-SceI, I-SceII, I-SceIII, I-SceIV, I-SceV, I-SceVI, I-SceVII, I-SexIP, I-SneIP, I-SpomCP, I-SpomIP, I-SpomIIP, I-SquIP, I-Ssp6803I, I-SthPhiJP, I-SthPhiST3P, I-SthPhiS3bP, I-TdeIP, I-TevI, I-TevII, I-TevIII, I-UarAP, I-UarHGPA1P, I-UarHGPA13P, I-VinIP, I-ZbiIP, PI-MtuI, PI-MtuHIP, PI-MtuHIIP, PI-PfuI, PI-PfuII, PI-PkoI, PI-PkoII, PI-PspI, PI-Rma43812IP, PI-SPBetaIP, PI-SceI, PI-TfuI, PI-TfuII, PI-ThyI, PI-TliI, PI-TliII and combinations thereof.

18. (Withdrawn) The method of claim 11, wherein the enzyme is selected from the group consisting of enzymes that contain the sequence as shown in SEQ ID NO: 2, 4, 6, 8 or 10, and combinations thereof.

19. (Withdrawn) The method of claim 11, wherein the enzyme is encoded in an expression cassette.

20. (Withdrawn) The method of claim 11, wherein the nucleic acid sequence comprises the sequence as shown in SEQ ID NO: 1, 3, 5, 7 or 9, or a combination thereof.

21. (Withdrawn) An organism comprising the recombination system of claim 1.

22. (Withdrawn) The organism of claim 21 selected from the group consisting of yeasts, algae, fungi and animal and plant organisms.

23. (Cancelled)

24. (Withdrawn, currently amended) The organism of claim ~~22~~ 21, wherein the plant organism is selected from the group consisting of Arabidopsis thaliana, tobacco, wheat, rye, barley, oats, oilseed rape, maize, potato, sugar beet, soybean, sunflower, pumpkin/squash and peanut.

25. (Withdrawn) A cell culture, organ, tissue, part or transgenic propagation material derived from the organism of claim 21.

26. (Withdrawn) A method for the production of foodstuff, feedstuff, seeds, pharmaceuticals or fine chemicals comprising expressing said foodstuff, feedstuff, seeds, pharmaceuticals or fine chemicals from the recombinant system of the organism of claim 20.

27. (Previously presented) The system of claim 2, wherein the further nucleic acid sequence comprises an expression cassette for an enzyme suitable for inducing DNA double-strand breaks at the recognition sequence for the site-directed induction of DNA double-strand breaks.

28. (Previously presented) The system of claim 1, wherein the construct further comprises an expression cassette for an enzyme suitable for inducing DNA double-strand breaks at the recognition sequence for the site-directed induction of DNA double-strand breaks.

29. (Withdrawn) The method of claim 12, wherein the further nucleic acid sequence comprises an expression cassette for an enzyme suitable for inducing DNA double-strand breaks at the recognition sequence for the site-directed induction of DNA double-strand breaks.

30. (Withdrawn) The method of claim 11, wherein the construct comprises an expression cassette for an enzyme suitable for inducing DNA double-strand breaks at the recognition sequence for the site-directed induction of DNA double-strand breaks.

31. (New) The system of claim 1, wherein the transgenic recombination construct comprises at least two recognition sequences for site-directed induction of DNA double-strand breaks and all recognition sequences for site-directed induction of DNA double-strand breaks are located between homology sequences A and B.